## Max Wei, PhD, MBA

Energy Analysis and Environmental Impacts Department

Environmental Energy Technologies Division

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# SUMMARY OF QUALIFICATIONS

* State and National Expert in climate change mitigation issues, policies, and pathways
  + Author/co-author of several recent publications and reports spanning global, national, state, and local climate policy, potentials for greenhouse gas savings in California, behavioral change and conservation, energy efficient appliances, fuel cells, fuel switching, and green jobs
  + Presented over 20 talks to at national and international conferences and to government and research bodies including the U.S. Department of Energy, the California Energy Commission, and the National Science Foundation
* Twelve years of program management experience
  + Extensive track record in grant writing, budgeting, and staffing programs, and in successfully organizing and leading teams to meet project deliverables and goals
  + Managed several teams of high-level professionals as Program Manager at Lawrence Berkeley National Laboratory and Process Integration Manager at Intel Corporation
  + Raised over $6 million in competitive grant funding from the State of California and the U.S. Department of Energy

**LAWRENCE BERKELEY NATIONAL LABORATORY**

# Research Scientist, Energy Analysis and Environmental Impacts Department, Environmental Energy Technologies Division                 (April 2018 - June 2019)

* Leading efforts for California to develop greater resilience to extreme weather as Principal Investigator (PI) for an upcoming project for the California Strategic Growth Council, “CAL-THRIVES, A California Toolkit for Heat Resiliency in Vulnerable Environments”
* Leading efforts for California to achieve greater environmental justice by developing an action plan to facilitate the greater adoption of clean energy technologies in disadvantaged communities as PI for a new California Energy Commission project, “Building Healthier and More Energy-Efficient Communities in Fresno and the Central Valley.”
* PI for two other CEC projects: (1) Zero Net Energy (ZNE) new home cost effectiveness project and (2) analysis of the benefits and challenges in the deployment of low GWP A3 refrigerants in residential and commercial cooling equipment
* Lead a project for the DOE Fuel Cell Technologies Office on the viability and potential costs of reversible fuel cells for long term storage in support of the electricity grid.
* Co-lead a multi-scale modeling project for the Department of Energy combining grid modeling with hydrogen resources (Hydrogen generation and vehicle-to-grid integration).
* Led a recent $5 million proposal to the California Energy Commission, “Next Generation Wildfire Risk and Spread Models for California using Big Data and High-Performance Computing Solutions for Grid Resilience.”  Led proposal technical content development and partnerships with three University of California campuses (UC Berkeley, UC San Diego, and UC Davis), United States Geological Survey (USGS), and the Missoula Fire Sciences Lab in Missoula, Montana.

# Program Manager III, Energy Analysis and Environmental Impacts Department, Environmental Energy Technologies Division                        (May 2010-March 2018)

* **Project Leader and Principal Investigator for the Long Term Energy Scenarios Project** for the California Energy Commission. Lead a research team of graduate students to develop and model scenarios for future energy system demands and provide estimates of greenhouse gas emissions in 2050 across energy and non-energy sectors, spanning a wide range of energy modeling areas: building electricity and natural gas demand projections, switching residential water heating from natural gas to electricity and solar thermal heating, hydrogen fuel cell vehicle cost competitiveness, and electricity system resilience to drought and a hotter climate.
* **Co-led the CEC study, “Assessing the Impact of Wildfires on the California Electricity Grid.”** Developed estimates for the impact of grid outages from wildfires using PLEXOS and SWITCH modeling tools.
* **Fuel Cell Total Cost of Ownership Modeling Project** for the U.S. Department of Energy, Project Leader and Principal Investigator.
  + Establish project timelines and deliverables, coordinate work of others, and manage project budget. Lead biweekly team meeting to ensure timely completion of project reports and presentations. Present annual progress report to the U.S. Department of Energy. Work in partnership with the UC Berkeley Transportation Sustainability Research Center.
  + Direct research and analysis activities in manufacturing process analysis, manufacturing cost and life cycle cost modeling, and valuation of externalities such as carbon credits and health impacts.
* **Awarded $6.46 million from the California Energy Commission and U.S. Department of Energy from 2011-2018** for seven GHG mitigation and adaption-related proposals.
  + Recent research projects funded include “CAL-THRIVES: A California Toolkit for Heat Resiliency In Vulnerable Environments for the California Strategic Growth Council; and “Building Healthier and More Energy-Efficient Communities in Fresno and the Central Valley”, Zero Net Energy new home cost effectiveness, and analysis of the benefits and challenges in the deployment of low GWP A3 refrigerants in residential and commercial cooling equipment for the California Energy Commission.
  + Developed partnerships with industry consultants E3, Davis Energy Group, and Strategic Analysis, with researchers at UC Berkeley and with industry partner Ballard Power Systems.

# UNIVERSITY OF CALIFORNIA, BERKELEY 2009-2010

# Research Fellow, Renewable and Appropriate Energy Laboratory, Energy and Resources Group

* Produced employment and economic analysis for Property Assessed Clean Energy (PACE) Clean Energy Financing Bill AB77. Part of a team that met with state assembly staff to discuss passage of the bill which was signed into law in April 2010.
* Lead author of employment and economic analysis for a feed-in-tariff proposal sponsored by the Feed-In Tariff Coalition. Conducted a detailed study of renewable energy costs, electricity avoided costs, associated employment, ratepayer impacts, and revenues to the state.
* Lead author of a meta-study of employment in renewable energy, energy efficiency, and low carbon supply technologies. Developed an analytical model for cumulative employment to 2030 as a function of supply sources and demand scenarios.

# INTEL CORPORATION 1995-2007

# Process Integration Manager, California Technology and Manufacturing Division

* Key decision-maker in setting program technology direction. Built high level development plans, set milestones and summarized key recommendations, progress, and risk assessment.
* Chaired and directed large meetings with multiple stakeholders including the Yield Group, Process Engineering Group, Reliability Group, and Product Development Team.
* Proposed and implemented several technological innovations to overcome key technical challenges. Filed three patents. Presented novel flash technology at a leading international semiconductor conference in Japan.
* Co-led team to the world’s first demonstration and high volume manufacturing of 3GHz microprocessor. Led team of engineers and product managers across four factory sites to develop new transistor architecture and successfully ramp to high volume manufacturing.
* Two-time recipient of the Intel Achievement Award, for developing industry-leading microprocessor technology (2003) and for developing high-density memory technology (2007).

# EDUCATION

**Master of Business Administration (MBA)**

**Haas School of Business, UC Berkeley, 2009**

* Certificate in Engineering and Business for Sustainability
* Specialization in energy markets, energy policy and technology

**Doctor of Philosophy (PhD) in Electrical Engineering and Computer Sciences**

**UC Berkeley, 1995**

* Major area: Quantum Electronics; Minor areas: Solid-state Electronics and Physics
* Dissertation Topic: Patterning Periodic Nanostructures Using Soft X-Ray Interference
* Research Assistantship at Center for X-Ray Optics, Lawrence Berkeley National Laboratory

**Bachelor of Science (BS) in Electrical Engineering and Computer Sciences**

**University of Michigan, 1988**

* Summa cum laude, Phi Beta Kappa

**TECHNICAL COLLABORATORS**

AghaKouchak, Amir (University of California, Irvine)

Beattie, Paul (Ballard Power Systems)

Breunig, Hanna (Lawrence Berkeley National Laboratory)

Cantore, Nicola (UNIDO)

Cecil, Summer (City of Fresno)

Chong, Patricia (Ballard Power Systems)

Colella, Whitney (Founder and Consultant, Gaia Energy Systems)

Dale, Larry (Lawrence Berkeley National Laboratory)

Deason, Jeff (Lawrence Berkeley National Laboratory)

Eichman, Joshua (National Renewable Energy Laboratory)

Epstein, Bob (Founder, Environmental Entrepreneurs)

Franco, Guido (California Energy Commission)

Gershon, David (CEO, Empowerment Institute)

Greenblatt, Jeff (Lawrence Berkeley National Laboratory)

Hendron, Bob (Frontier Energy)

Hernandez, Rebecca (UC Davis)

Hong, Tianzhen (Lawrence Berkeley National Laboratory)

Kammen, Dan (UC Berkeley)

James, James (Strategic Analysis)

Jones, Chris, (UC Berkeley)

Levin, Todd (Argonne National Laboratory)

Lipman, Tim (UC Berkeley)

Long, Jane, (Environmental Defense Fund and UC Berkeley)

Masanet, Eric (Northwestern University)

Mayyas, Ahmad (National Renewable Energy Laboratory)

McKenzie, Lucy (Energy and Environmental Economics)

Morrow, William (Lawrence Berkeley National Laboratory)

Muratori, Matteo (National Renewable Energy Laboratory)

Nussbaumer, Patrick (UNIDO)

Oros, Mickey (Altergy Power Systems)

Phadke, Amol (Lawrence Berkeley National Laboratory)

Plotkin, Steve (Argonne National Laboratory)

Price, Snuller (Energy and Environmental Economics)

Raghavan, Shuba (University of California, Berkeley)

Ruth, Mark (National Renewable Energy Laboratory)

Samuelsen, Scott (University of California, Irvine)

Santarelli, Massimo (Polytechnic University of Turin, Italy)

Saxena, Sam (Lawrence Berkeley National Laboratory)

Schiller, Steve (Lawrence Berkeley National Laboratory, Strategen Consulting)

Schwarz, Lisa (Lawrence Berkeley National Laboratory)

Sears, Mitch (City of Davis)

Shah, Nihar (Lawrence Berkeley National Laboratory)

Sohn, Michael (Lawrence Berkeley National Laboratory)

Stadler, Michael (Lawrence Berkeley National Laboratory)

Tarroja, Brian (UC Irvine)

Yang, Christopher (UC Davis)

Zohdi, Tarek (UC Berkeley)

# AWARDS

DOE Fuel Cells Program Annual Award for H2@Scale project, shared with 13 other recipients from other national labs – June 13, 2018. “This award recognizes multiple researchers from the National Renewable Energy Laboratory, Idaho National Laboratory, Argonne National Laboratory, and Lawrence Berkeley National Laboratory for their leadership in the development of the groundbreaking H2@Scale initiative. H2@Scale aims to advance affordable widescale hydrogen production, transport, storage, and utilization to unlock revenue potential and value across sectors”

(https://www.hydrogen.energy.gov/annual\_review18\_awards.html )

Green Leadership Award at the 12th Annual Green California Summit in Sacramento – April 9, 2018. “The Lab's Energy Technologies Area (ETA) was highlighted for innovative breakthroughs in the energy efficiency category for research aimed at helping California meet its zero net energy (ZNE) building goals, while ensuring adequate indoor air quality and ventilation.” This award recognized my ZNE cost analysis project and Brett Singer’s IAQ project, both for the CEC. http://today.lbl.gov/2018/05/11/lab-honored-for-work-on-zero-net-energy-buildings/

SPOT Recognition Award for U.S. Department of Energy Office of Energy Policy and System Analysis End-Use baseline study, May 2016.

SPOT Recognition Award, Lawrence Berkeley National Laboratory, for extraordinary effort to complete a major proposal on fuel cell economic analysis, March 2011.

Intel Achievement Award, June 2007, “For developing a new self-aligned NOR Flash memory technology.”

Intel Achievement Award, May 2003, “For fast development of 0.13 micron transistors.”

Thirteen other Intel divisional and departmental awards.

# COMMUNITY SERVICE

Leadership in the local community, spearheading citywide efforts to meet carbon reduction goals and increase environmental awareness and sustainability

* + Committee member of the City of Albany Sustainability Committee
  + Founder of the Albany Carbon Reduction Action Team, a local community coalition focusing on outreach, education, and resource conservation

**PUBLICATIONS AND REPORTS**

***H-index: 13, Citations: 1164 (Google Scholar)***

# Journal Articles: Published or Accepted

1. Matteo Di Salvo, Max Wei, Synthesis of Natural Gas from Thermochemical and Power-to-Gas Pathways for Industrial Sector Decarbonization in California, Energy, Volume 182, 2019, Pages 1250-1264.
2. Brian Tarroja, Felicia Chiang, Amir AghaKouchak, Scott Samuelsen, Shuba V. Raghavan, Max Wei, Kaiyu Sun, Tianzhen Hong, Translating climate change and heating system electrification impacts on building energy use to future greenhouse gas emissions and electric grid capacity requirements in California, Applied Energy, Volume 225, 2018, Pages 522-534, <https://doi.org/10.1016/j.apenergy.2018.05.003>.
3. Dai Wang, Matteo Muratori, Joshua Eichman, Max Wei, Samveg Saxena, Cong Zhang,Quantifying the flexibility of hydrogen production systems to support large-scale renewable energy integration, Journal of Power Sources, Volume 399, 2018,  Pages 383-391, ISSN 0378-7753, <https://doi.org/10.1016/j.jpowsour.2018.07.101>.
4. Eleonora Ruffini, Max Wei, Future costs of fuel cell electric vehicles in California using a learning rate approach, Energy, Volume 150, 2018, Pages 329-341, ISSN 0360-5442, <https://doi.org/10.1016/j.energy.2018.02.071>.
5. Roberto Scataglini, Max Wei, Ahmad Mayyas, Shuk Han Chan, Timothy Lipman, Massimo Santarelli, A Direct Manufacturing Cost Model for Solid-Oxide Fuel Cell Stacks, Accepted to Fuel Cells-Wiley Journal, September 2017.
6. Shuba V. Raghavan, Max Wei, Daniel M. Kammen, Scenarios to Decarbonize Residential Water Heating in California, Energy Policy, Volume 109, 2017, Pages 441-451, ISSN 0301-4215, https://doi.org/10.1016/j.enpol.2017.07.002.
7. Max Wei, Sarah J. Smith, Michael D. Sohn, Experience curve development and cost reduction disaggregation for fuel cell markets in Japan and the US, Applied Energy, Volume 191, 1 April 2017, Pages 346-357, ISSN 0306-2619, <https://doi.org/10.1016/j.apenergy.2017.01.056>.
8. N. Cantore, P. Nussbaumer, M. Wei, D. Kammen, “Promoting renewable energy and energy efficiency in Africa: a framework to evaluate employment generation and cost effectiveness,” Environ. Res. Lett. 12 (2017) 035008, <https://doi.org/10.1088/1748-9326/aa51da>
9. Max Wei, S. Smith, M. Sohn, “Non-Constant Learning Rates in Retrospective Experience Curve Analyses and their Correlation to Deployment Programs,” Energy Policy 107 (2017) 356–369, <https://doi.org/10.1016/j.enpol.2017.04.035>
10. Sarah J. Smith, Max Wei, Michael D. Sohn, A retrospective analysis of compact fluorescent lamp experience curves and their correlations to deployment programs, Energy Policy, Volume 98, November 2016, Pages 505-512, ISSN 0301-4215,<http://dx.doi.org/10.1016/j.enpol.2016.09.023>.
11. J.B. Greenblatt and M. Wei, “Assessment of the Climate Commitments and Additional Mitigation Policies of the United States,” Nature Climate Change 6, 1090–1093 (2016), doi:10.1038/nclimate3125
12. M. Wei, J.H. Nelson, J.B. Greenblatt, A. Mileva, J. Johnston, M. Ting, C. Yang, C. Jones, J.E. McMahon, D.M. Kammen, “Deep Carbon Reductions in California Require Electrification and Integration Across Economic Sectors,” *Environmental Research Letters*, 2013; 8:014038.
13. M. Wei, S. Patadia, D. Kammen, “Putting Renewables and Energy Efficiency to Work: How Many Jobs can the Clean Energy Industry Create in the United States?” Energy Policy 38 (2010) 919-931.

# Journal Articles in Preparation

Shuba Raghavan, Max Wei, Dan Johnson, Florin-James Langer, Dan Kammen, Decarbonizing Residential Space Heating and Cooling with Climate Change, submitted to Energy Policy, August 2019

Zhang, Cong, Jeffery Greenblatt, Max Wei, Matteo Muratori, Joshua Eichman, Samveg Saxena, Economic impacts to the electricity grid of flexible electrolysis production of hydrogen to support hydrogen fuel cell electric vehicles, submitted to Journal of Power Sources, Dec. 2019

# Reports

Max Wei, Sang Hoon Lee, Hung-Chia Yang, Sarah Price, Jeff Greenblatt, Tianzhen Hong, Brian Conlon, Lucy McKenzie, Zachary Ming, Bob Hendron, Alea German, 2019. *Approaches to Zero Net Energy Cost Effectiveness in New Homes.* California Energy Commission. Publication Number: CEC-XXX-201X-XXX, in review.

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| Nihar Shah, Max Wei, Virginie Letschert, Amol Phadke Benefits of Energy Efficient and Low-Global  Warming Potential Refrigerant Cooling Equipment, Lawrence Berkeley Lab Report LBNL-2001229,  August 2019. |

Wei, Max, Shuba Raghavan, Patricia Hidalgo-Gonzalez, Rodrigo Henriquez Auba, Dev Millstein, Madison Hoffacker, Rebecca Hernandez, Eleonara Ruffini, Brian Tarroja, Amir Agha Kouchak, Josiah Johnston, Daniel Kammen, Julia Szinai, Colin Shepard, Anand Gopal, Kaiyu Sun, Tianzhen Hong, and Florin-Langer James. 2019. Building a Healthier and More Robust Future: 2050 Low-Carbon Energy Scenarios for California. California Energy Commission. Publication Number: CEC-500-2019-033.

Dale, Larry, Michael Carnall, Gary Fitts, Sarah Lewis McDonald, and Max Wei. (Lawrence Berkeley National Laboratory). 2018. Assessing the Impact of Wildfires on the California Electricity Grid. California’s Fourth Climate Change Assessment, California Energy Commission. Publication Number: CCCA4-CEC-2018-002.

Jeff Deason, Max Wei, Greg Leventis, Sarah Smith and Lisa Schwartz. Electrification of buildings and industry in the United States: Drivers, barriers, prospects, and policy approaches, LBNL report LBNL-2001133, March 2018.

L. Schwartz, M. Wei, W. Morrow, J. Deason, S. Schiller, G. Leventis, S. Smith, W. L. Leow, S. Plotkin, Y. Zhou, T. Levin, D. Santini, prese“Electricity End Uses, Energy Efficiency, and Distributed Energy Resources: Baseline and Outlook Through 2040,” Lawrence Berkeley Laboratory Report LBNL- 1006983, January 2017

Max Wei, Sarah J. Smith, Michael D. Sohn, Analysis of Fuel Cell Markets in Japan and the US: Experience Curve Development and Cost Reduction Disaggregation, LBNL Report 100629. July 2016

R. Scataglini, A. Mayyas, M. Wei, S. H. Chan, T. Lipman, D. Gosselin, A. D’Alessio, H. Breunig, W. G. Colella, B. D. James, “A Total Cost of Ownership Model for Solid Oxide Fuel Cells in Combined Heat and Power and Power-Only Applications,” Lawrence Berkeley Laboratory Report LBNL-1005725. December 2015.

N. Shah, M. Wei, V. Letschert, A. Phadke, “Benefits of Leapfrogging to Superefficiency and Low Global Warming Potential Refrigerants in Room Air Conditioning,” Lawrence Berkeley Laboratory Report LBNL-1003671, October 2015.

M. Wei, J.B. Greenblatt, S.M. Donovan, J. H. Nelson, A. Mileva, J. Johnston, D.M. Kammen, “Non-Electricity Sectors and Overall Scenarios for Meeting 80% Emissions Reduction in 2050 (Vol. I, California’s Carbon Challenge Phase 2),” California Energy Commission PIER Report, November 2014.

J. Nelson, A. Mileva, J. Johnston, D.M. Kammen, M. Wei, J.B. Greenblatt, “Planning Power Systems with Deep Emission Reductions by 2050 using the SWITCH Model (Vol. II, California’s Carbon Challenge Phase 2),” California Energy Commission PIER Report, November 2014.

M. Wei, T. Lipman, et al, “A Total Cost of Ownership Model for Low Temperature PEM Fuel Cells in Combined Heat and Power and Backup Power Applications,” Lawrence Berkeley National Laboratory Report LBNL- 6772E, October 2014.

M. Wei, J.B. Greenblatt, “Commercial Refrigerated Beverage Vending Machine Outdoor Location and Elevated (90°F) Outdoor Temperature Analysis,” Lawrence Berkeley National Laboratory Report LBNL-6744E, January 2014.

M. Wei, J. Nelson, M. Ting, C. Yang, J.B. Greenblatt, J.E. McMahon, “California’s Carbon Challenge: Scenarios for Meeting 80% Emissions Reduction in 2050,” Lawrence Berkeley National Laboratory Report LBNL-5448E, November 2012.

J.B. Greenblatt, M. Wei, and J.E. McMahon, “California's Energy Future: Buildings and Industrial Energy Efficiency,” California Council on Science and Technology, 2012. <http://ccst.us/publications/2011/CEF%20index.php>.

J.B. Greenblatt, M. Wei, C. Yang, B. Richter, B. Hannegan, H. Youngs, J. Long, M. John, “California’s Energy Future – The View to 2050 Summary Report,” California Council on Science and Technology, May 2011.

M. Wei, D. Kammen, “Economic Benefits of a Comprehensive Feed-In Tariff: An Analysis of the REESA in California,” Renewable and Appropriate Energy Laboratory report in cooperation with the Feed-in Tariff Coalition, Energy and Resources Group, University of California at Berkeley, July 2010.

# Book and Encyclopedia Chapters

Wei M. et al. (2018) Fuel Cell Systems, Total Cost of Ownership. In: Meyers R. (eds) Encyclopedia of Sustainability Science and Technology. Springer, New York, NY

<http://link-springer-com-s.vpn.whu.edu.cn:9440/referenceworkentry/10.1007/978-1-4939-2493-6_1020-1#howtocite>

Max Wei, Ahmad Mayyas, Tim Lipman, Hanna Breunig, Shuk-han Chan, Roberto Scataglini, Nadir Saggiorato, “Total Cost of Ownership Modeling of Combined Heat and Power Fuel Cell Systems,’ to appear in Encyclopedia of Sustainability Science and Technology, Second Edition, edited by  Robert A. Meyers.

M. Wei, S. H. Chan, A. Mayyas, T. Lipman, “Deployment and Capacity Trends for Stationary Fuel Cell Systems in the United States,” Data, Facts and Figures on Fuel Cells, Wiley-VCH, N. Garland, et al, Eds., 2014.

A. Mayyas, M. Wei, S. H. Chan, T. Lipman, “Fuel Cell Forklift Deployment in the United States,” Data, Facts and Figures on Fuel Cells, Wiley-VCH, N. Garland, et al, Eds., 2014.

# Other Publications and Reports

V.C. Tidwell, L. Dale, G. Franco, K. Avery, M. Wei, D. M. Kammen, and J. H. Nelson. “Energy: Supply, Demand, and Impacts,” in *Assessment of Climate Change in the Southwest United States: A Report Prepared for the National Climate Assessment*, a report by the Southwest Climate Alliance, edited by G. Garfin, et al, pp. 240–266. Washington, DC: Island Press, 2013.

M. Wei, E.H. Anderson, D.T. Attwood, "Patterning a 50 nm Period Grating Using Soft X-Ray Spatial Frequency Multiplication," *Journal of Vacuum Science and Technology B*, December 1994.

**INVITED TALKS AND PRESENTATIONS**

Invited Remarks, “Meeting the SB 100 goal of a 100% zero carbon electricity grid by 2045,” California state Assembly Clean Energy Subcommittee (Chair Bill Quirk), March 13, 2019, Sacramento, California.

Invited Presentation 2018, “Zero Net Energy New Homes – Approaches to Cost Effectiveness,” CEC/EPIC Research Symposium, Sacramento, CA, December 1, 2016,

Invited Presentation 2017, “Low Carbon Scenario Analysis and Climate Change in Energy Planning - Some actionable items in past and current work”, CEC Staff Workshop Potential Areas of Research on Climate Change for the Electricity and Natural Gas Systems, Sacramento, CA, March 16, 2017.  [Presentation attended by Laurie ten Hope, Deputy Director, California Energy Commission; and Susan Wilhelm, Climate Change Lead, California Energy Commission].

Invited Presentation, 2017, “The Importance of Climate Change in Energy Planning and Scenario Analysis,” (Jeff Greenblatt, presenter), Fourth California Climate Change Assessment Symposium, Sacramento, CA, January 26, 2017.

Invited National Webinar 2016, “Total Cost of Ownership Modeling for Stationary Fuel Cell Systems,” DOE EERE Fuel Cell Technologies Office December 13, 2016.

Invited Presentation 2016,“Low Carbon Energy Scenario Insights for a Robust Electricity System - The Importance of Climate Change in Energy Planning and Scenario Analysis,” CEC/EPIC Research Symposium, Sacramento, CA, December 1, 2016,

Invited speaker for the Berkeley-Tsinghua Joint Research Center on Energy and Climate Meeting, to be held October 2016. Presentation on Hydrofluorocarbon Reduction Potential.

“Understanding the U.S. Climate Change Announcement and Pledges,” at the launching ceremony and workshop for the Berkeley-Tsinghua Joint Research Center on Energy and Climate in Berkeley on May 10, 2016.

“Trends in Greenhouse Gas Emissions and Scenarios for 80% Emissions Reduction in 2050 – a California Perspective,” presented at the panel topic discussion On the Growing Importance of the Transportation Sector in GHG Emissions.Behavior, Energy and Climate Change Conference, Baltimore MD, November 20, 2013.

“Holistic Approaches for Achieving Local Climate Action,” presented at the panel topic discussion on Resilience, Diversity and Engagement. Garrison Institute Climate Cities and Behavior Symposium in Garrison, NY, March 14, 2013.

“Breaking Barriers to Achieving Deep Carbon Reduction in California by 2050,” presented at the Workshop on Climate Sensitivity on Decadal and to Century Timescales, Aspen Global Climate Institute in Aspen Colorado on May 24, 2012.

“California’s Carbon Challenge: Scenarios for Meeting 80% Emissions Reduction in 2050,” presented at The Road to a 100% Renewable Energy System Workshop in Milpitas, California on August 1, 2011. Sponsored by the Center for Sustainable Energy and Power Systems, University of California, Santa Cruz.

“Carbon Emissions and Cost impact of Converting to Heat Pump Based Water Heating,” presented at the ACEEE (American Council for an Energy-Efficient Economy) Hot Water Forum in Berkeley, California on May 11, 2011.

Presented the Keynote Address: “Transitioning to a New Energy Economy,” at the National Energy Technician Education Summit. Sponsored by the American Association of Community Colleges, National Science Foundation, and the Advanced Technology Environmental and Energy Center in Washington, D.C. on December 8, 2010.

“Job Creation Potential of the Green Economy – A U.S. Perspective,” with D. Kammen and S. Patadia, presented at the Green Jobs in China Conference, International Labor Organization in Beijing, China, March 2009.

# Contributed oral presentations at professional conferences, scientific meetings or forums

Conference presentation 2018, “Approaches to More Cost Effective New Zero-Net Energy Homes,” ACEEE Summer Study on Energy Efficiency, August 17, 2018, Asilomar, California.

Review Meeting Presentation 2018 , “Integrated Systems Modeling of the Interactions between Stationary Hydrogen,  Vehicles, and Grid Resources,” 2018 DOE Fuel Cell Technologies Office Annual Merit Review Oral Presentation, Washington DC June 13, 2018.

Conference presentation 2017, “Pathways to Decarbonize Residential Water Heating in California”, ACEEE Hot Water Forum, February 28, 2017, Portland, Oregon.

Review Meeting Presentation 2017 , “Integrated Systems Modeling of the Interactions between Stationary Hydrogen,  Vehicles, and Grid Resources,” 2017 DOE Fuel Cell Technologies Office Annual Merit Review Oral Presentation, Washington DC June 8, 2017.

“Total Cost of Ownership Model for SOFC CHP systems,” Fuel Cell Seminar Conference in Los Angeles, California, November 2015.

“A Total Cost of Ownership Model for Low Temperature PEM Fuel Cells in Combined Heat and Power and Backup Power Applications,” with T. Lipman, A. Mayyas, S.H. Chan, D. Gosselin, H. Breunig, T. McKone, Grove Fuel Cell Conference in Amsterdam, Netherlands on April 4, 2014*.*

“[Carbon Budgets and Your Carbon Legacy](http://beccconference.org/wp-content/uploads/2013/12/Wei_Carbon-Budget-BECC_2013-r8-Wei.pdf),” presented at the Behavior, Energy and Climate Change Conference in Sacramento, California on November 20, 2013.

“Confucius, Keynes, and Christ: The role and opportunity for ethics and ethical systems as a driver for climate-friendly behavior change,” presented at the Behavior, Energy and Climate Change Conference in Sacramento, California on November 14, 2012. [Presentation slides](http://beccconference.org/wp-content/uploads/2012/11/Confucius-Keynes-and-Christ-slides-Nov1212-preso-v2.pdf); [Blog Post](https://thinkprogress.org/confucius-keynes-and-christ-the-role-and-opportunity-for-ethics-as-a-driver-for-climate-friendly-5f20d0f15aa#.lw0v6i3wm)

“The Importance and Potential of Long-Term Behavior Change: GHG Reductions From Habitual Behavior Changes in Future Low-Carbon Energy Systems,” with C. Jones, J.B. Greenblatt, and J.E. McMahon, presented at the Behavior, Energy and Climate Change Conference in Washington, D.C. on December 1, 2011.